The Global Challenge

Global waste

production is

predicted by

some to double

over the next

twenty years.

Much of this

will be due to

increased

urbanisation and

greater waste

generation

per capita as

emerging

economies grow.

**Future of Waste** 85

What is less certain are a number of political,

environmental, global economic and technological

factors. Political motivation and resource policy directions

are very unpredictable, especially after a downturn where

the economics of waste recycling have become less

viable than before. In addition, we don’t yet understand

the impacts that global warming will have on

governmental decisions that impact waste management

- what is the connection between waste generation /

treatment and climate change? Can some waste

materials be used to generate sustainable energy in

order to address future energy needs? The impact and

implications of increased resource use on society, the

economy and the environment are likely to be global and

significant but the details are not yet fully clear. Although

some point to examples such as Switzerland where there

are currently high levels of waste recycling occurring due

to local conditions, it is not certain that this will be

sustained. At the same time, whether, or to what extent,

waste quantities continue to rise in the developed world

is not certain. Also, we don’t yet know how rapid will be

the uptake of sustainable and smart technologies, such

as nano-materials, which will in theory result in less

waste. Despite an increase in hazard, high use of rare

metals in IT hardware such as phones and PCs will

increase but waste quantities may reduce.

We have the options of accelerating the development of

Zero Waste concepts, creating better sustainable

technologies, and facilitating better geographical

spread of these technologies, but this needs

investment. This is investment in appropriate

infrastructures, service provision and new approaches

to facilitate behaviour change in particular

environments. We also have the option of creating new

accredited global standards for management, treatment

and disposal of waste, but this needs cooperation

between companies and countries. There are many

things we could do to fundamentally change direction

and create less waste, but some question what we will

actually do.

Over the next decade, the increasing global population and the increasing economic growth of many emerging

nations will create more waste. As well as putting a huge strain on resources such as fresh water and energy,

another billion or so people added to the planet in the next ten years will certainly demand more and so create

more waste. This will include more food and energy waste; more household waste; increased electronic

wastes facilitated by lower prices, new products and more choice; and more hazardous waste from industry

generally and an increase in nuclear energy specifically. To try and counteract this we will see less packaging

waste due to regulation and more biodegradable packaging; more pressure to reduce the environmental

impacts from waste; increased complexity in the waste stream and an increase in concerns regarding the

health effects of waste treatment. These are all visible trends today that will continue going forward.

Options and Possibilities

We have the

options of

accelerating the

development of

Zero Waste

concepts,

creating better

sustainable

technologies, and

facilitating better

geographical

spread of these

technologies, but

this needs

investment.

**What do you think?** Add your views to the global perspective on www.futureagenda.org

86 **Future of Waste**

First off is the development of practical integrated

sustainable waste management solutions that are

clearly aimed at the creation of a zero waste society.

This will mean the simultaneous development of the

infrastructure, service provision and behavior change to

enable the core elements to be aligned. This won’t be

politically attractive but will be necessary. Within all

environments we need to develop truly sustainable

waste practices, policies and strategies. This will mean

moving waste management in line with a reduced

carbon economy; developing appropriate and low

environmental impact collection systems for small reuseable/

recyclable items (WEEE); and adherence to

approaches that satisfy regional self-sufficiency,

proximity principle, sustainability appraisals, etc. This

includes sustainable management of minerals and

aggregates; prevention of food waste, and facilitating

resource recovery from wastes, as well as addressing

imminent resource depletion of key materials such as

the rare metals used in IT hardware.

Second is the development of mass low-cost

sustainable technologies for waste treatment /

transformation and pollution prevention on a global

scale. We need to develop technologies and systems

for the global prevention of pollution from the handling

and treatment of wastes, especially waste waters and

industrial effluents. This will require concepts such as

green chemistry and engineering to become

mainstream rather than niche using appropriate

incentives and / or legislation. But can we develop

mass low cost sustainable technologies on a global

scale? This will require substantial knowledge transfer.

Better technologies offer money-making opportunities

and, in themselves, require less change to current

practice than the infrastructure and behavior pathway.

However, although zero waste strategies will be a

popular concept, many in business and industry will

resist it just as unleaded petrol was initially rejected.

Therefore the technology route should not be backed in

isolation - we need the technologies and the integrated

waste management solutions together.

While these are the two main issues, there are also a

number of additional actions that will have a quick,

short-term impact. These include increased

enforcement, education and awareness for

organisations and businesses in how to manage their

waste, especially from those not conflicted by

commercial gain; expansion of alternate weekly

collection systems in developed countries (e.g.

recyclables weekly, residuals fortnightly); further

legislation and / or economic disincentives on excessive

packaging; and higher involvement of both big business

and the third sector in re-use and recycling. We also

need to accelerate the willingness of individuals and

organizations to buy products made from recycled

materials and / or sustainable sources.

By 2020, I believe that we can make a significant impact on the waste problem by taking some clear steps.

And I would aim high: we need major changes.

Proposed Way Forward

Can we develop

mass low cost

sustainable

technologies on

a global scale?

**Future of Waste** 87

***•*** Economically, increased costs are inevitable:

Changes in feedstock for manufacturing, for

example, will probably increase costs initially until the

market adjusts and the use of recycled materials

becomes the norm. However given the long-term

impacts of not taking this route, most forward

thinking organisations should see the benefit and the

return that will be achieved on the necessary

investments.

***•*** Socially, both to enable a zero waste pathway and as

a result of it, there will be significantly greater public

awareness / knowledge of both waste management

issues and also of the adverse health / environmental

consequences of poor environmental management.

However without a fundamental, behaviour change

towards a more environmentally sustainable way of

life, any economic investments stand less chance of

having impact.

***•*** Technologically, we will see an increased use of

“smart products” to track, monitor and manage

waste, as well as new nanotechnologies and low

carbon technologies that create less waste.

Increased investment, to ensure all that waste

streams can be processed, will also eventually drive

a move towards mass low cost sustainable

technologies.

Until recently most people in the waste industry had

assumed that it was impossible to reduce the amount

being produced and were concentrating on better use.

But lately that assumption has been challenged. For

one thing, the pace at which the rich world churns out

rubbish has been slowing. Between 1980 and 2000

the amount of waste produced by the OECD countries

increased by an average of 2.5% a year. Between

2000 and 2005 the average growth rate slowed to

0.9%. That was just ahead of the rate of population

growth, but well behind the rate of economic growth.

The OECD describes this as “a rather strong relative

decoupling of municipal waste generation from

economic growth”

Reducing the amount of waste being produced makes

a great deal of sense. Some are trying to persuade

consumers to throw away less. One tactic is to make

households pay by volume for the rubbish they

generate, rather than through a flat fee or through local

taxes. Many places in Europe, America and Asia have

adopted “pay-as-you-throw” schemes.

Whether through such changes in consumer

behaviour, increased financial investment or the

development of new technology and policy, the world

is in desperate need of a shift towards the zero waste

society. Such a shift will not only benefit us by

addressing the growing waste challenge, but will also

have a positive impact on how we potentially generate

our energy, how we grow and use our food and how

we manage our water supplies.

There will be several direct consequences from seeking a credible move towards the zero waste society:

Impacts and Implications

The pace at

which the rich

world churns

out rubbish has

been slowing.

**What do you think?** Add your views to the global perspective on www.futureagenda.org

88 **Future of Waste**

The world is in

desperate need

of a shift towards

the zero waste

society.

http://s3.amazonaws.com/ppt-download/futureagenda-futureofwaste-0911231606641-phpapp01.pdf?Signature=HwqzMe